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ABSTRACT

This paper presents a study that assessed whether attributional retraining is an effective method for enhancing academic achievement in at-risk college students. Attributional retraining was provided to college students (N=198) who had previously performed either poorly or well on a test. Attributional retraining and previous performance (low or high) were further combined with a teaching variable, namely instructor expressiveness. Students received either none, one, two, or three videotaped attributional retraining sessions which stressed the role of effort and strategies. They then viewed a videotaped lecture presented by either a low or high expressive instructor. One week later, they wrote an achievement test based on the lecture. Results indicated that retraining enhanced performance on the achievement tests, but only when combined with effective instruction. Moreover, only students who had previously performed poorly benefitted from attributional retraining. These results suggest that contextual factors, such as teaching, and individual differences have to be considered when developing attributional retraining programs. Contains 15 references. (Author/GLR)

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Assisting At-risk College Students with Attributional Retraining and Effective Teaching

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ABSTRACT

Research indicates that attributional retraining is an effective method for enhancing academic achievement in college students (Perry, Hechter, Menec, & Weinberg, 1992). In the present study, attributional retraining was provided to college students who had previously performed either poorly or well on a test. Attributional retraining and previous performance (low, high) were further combined with a teaching variable, namely instructor expressiveness. Students received either none, one, two, or three attributional retraining sessions. They then viewed a videotaped lecture presented by either a low or high expressive instructor. One week later, they wrote an achievement test based on the lecture. Results indicate that retraining enhanced performance on the achievement test, but only when combined with effective instruction. Moreover, only students who had previously performed poorly benefited from attributional retraining. These results suggest that contextual factors, such as teaching, and individual differences have to be considered when developing attributional retraining programs.

ASSISTING AT-RISK COLLEGE STUDENTS WITH ATTRIBUTIONAL RETRAINING AND EFFECTIVE TEACHING

Effective teaching has long been regarded as instrumental to college students' academic development and empirical evidence is beginning to verify its benefits for students' achievement motivation and performance (Feldman, 1989; Perry, 1991). Unfortunately, effective teaching does not have positive results for all students. As Perry and his associates have demonstrated (e.g., Perry & Dickens, 1984) some students perform poorly despite high-quality instruction. For such students, other methods may have to supplement effective classroom instruction, in order to enhance motivation and performance. One therapeutic intervention that appears promising for improving achievement of college students is attributional retraining (Perry, Hechter, Menec, & Weinberg, 1992). The present study was designed to investigate whether attributional retraining would improve performance in potentially at-risk college students. Attributional retraining was combined with an instructional variable, namely instructor expressiveness, which has been shown to enhance students' achievement motivation and achievement (Perry, 1991).

At-risk Students

Many college students are faced with failure on tests, examinations, or oral presentations. First year students who have to deal with a variety of new experiences, such as a less structured school environment, being away from family, etc., may be particularly vulnerable to such experiences. Weiner's (1985, 1986) attribution theory predicts that depending on how students explain their failures and successes subsequent achievement

striving can be undermined. According to the theory, all attributions reflect three underlying dimensions: Locus of causality (internal, external), stability (stable, unstable), and controllability (controllable, uncontrollable). These dimensions are further linked with specific emotions, with stability also being associated with expectations of future success. The theory posits that these emotions and expectations determine motivated behavior.

Internal-stable attributions for failure, such as lack of ability, are particularly maladaptive since they may decrease self-esteem and expectations for future success. As a result, the student may experience motivational deficits, potentially leading to poor performance in the future, inattentiveness, absenteeism or even dropping out. In contrast, the consequences of attributing poor performance to lack of effort, typically perceived as internal and unstable, should be less negative since expectations of success are maintained. Similarly, the student who attributes failure to inadequate study strategies should not suffer motivational deficits, since the potential to improve one's strategies exist.

Students who perform poorly are especially at risk since they are unlikely to benefit from effective instruction. Perry and Dickens (1984) showed that, unlike students who felt in control, those who lacked control were unable to benefit from effective instruction, and performed poorly even with a high expressive instructor. This effect was replicated in several subsequent studies (Perry & Magnusson, 1987; 1989; Perry & Tunna, 1988). Attributional retraining, which involves changing maladaptive attributions to more adaptive ones, may be helpful for such students. By

modifying attributions about achievement outcomes, attributional retraining is expected to increase students' achievement motivation and, as a result, scholastic performance.

Attributional Retraining with College Students

Several studies indicate that attributional retraining can enhance performance of college students. Wilson and Linville (1982; 1985) used brief videotaped interviews of senior students and a professor who indicated that students' grade point average (GPA) tends to improve considerably from the first year at college to the sophomore year. The intervention was therefore designed to change students' attributions from stable to more unstable causes. Attributional retraining had both short-term and long-term consequences, improving performance on Graduate Record Examination (GRE)-type questions and increasing grades in the next semester, although the former effect was obtained only for male students.

Similarly, in a study by Perry and Penner (1990), first year college students viewed a brief videotape of a professor who stressed the importance of attributing failures and successes to effort and ability, emphasizing that both causes were controllable and unstable. A control group received no attributional retraining. All subjects then saw a 25-minute videotaped lecture, presented by either a low or high expressive instructor. Before leaving, a homework assignment was handed out to all students. One week later, subjects returned and wrote a 30-item achievement test based on the lecture content, as well as a 10-item test on the homework assignment. The results indicate that attributional retraining increased performance on the lecture test and the homework test

for students with an external locus of control, but not those with an internal locus. Several field experiments provide further support for the positive long-term effects of attributional retraining on college students' achievement (Van Overwalle & De Metsenaere, 1990; Van Overwalle, Segebarth, & Goldchstein, 1989).

Research with college students has focused exclusively on single, brief attributional retraining interventions. This is in contrast to studies with children, which typically involve repeated retraining sessions (see Forsterling, 1985 for a review). It is likely, however, that one retraining session is not sufficient for some college students, particularly those with severe motivational deficits. Such individuals may require more intensive intervention programs, involving multiple sessions, to improve their academic achievement. This issue was addressed in the present study by providing either one, two or three attributional retraining sessions.

Overview of Study

Either one, two, or three attributional retraining sessions (1AR, 2AR, 3AR) were provided for students who had performed either poorly or well on an aptitude test. A control group which received no attributional retraining was also included. An instructional variable, namely instructor expressiveness, was added to determine whether attributional retraining can assist potentially at-risk students who may not benefit from effective teaching. Thus, the design was an Attributional Retraining (control, 1AR, 2AR, 3AR) x Success (low, high) x Instructor Expressiveness (low, high) 4 x 2 x 2 factorial. Following Perry and Penner's (1990) study, a 30-item

multiple-choice test based on the lecture material was used as a measure of student achievement. In addition, attributions and expectations for future success were assessed.

It was hypothesized that attributional retraining would improve students' performance, particularly for students who had previously performed poorly. In contrast, attributional retraining may be less effective for successful individuals since they should be less likely to experience motivational deficits. Attributional retraining was also expected to enable low success subjects to benefit from effective teaching. Furthermore, it was thought that attributional retraining would increase expectations for future success.

Method

Subjects

Participants were 257 introductory psychology students at the University of Manitoba. They participated in the study for course credit. These students volunteered to participate in 3 sessions. However, 59 individuals failed to attend all 3 sessions and had to be dropped from the experiment. The final sample therefore included 198 students, of which 108 were female and 90 male.

Materials

Academic performance. A shortened, 24-item version of an aptitude test developed by Perry and Dickens (1984) was used to differentiate between low and high success students. This tests consists of GRE-like questions,

including verbal analogies, sentence completion questions, and quantitative questions. Students were classified into low versus high success groups according to a median split based on their actual performance on the test. A validity check supported the appropriateness of this classification since low success students also performed less well in their last year in high school than their high success counterparts, $t(192) = 3.49$, $p < .05$, with students in the low success group reporting overall grades of 73.56% versus 77.73% in the high success group. The low success condition may therefore represent one group of students who suffer motivational deficits and may therefore benefit from attributional retraining.

Attributional retraining videotapes. Three 8-minute videotapes of a male graduate student were used for the attributional retraining sessions. On all three videotapes, the graduate student recounted an incident when he, or a friend, failed on a task and had initially attributed this outcome to lack of ability. The student then emphasized that he had come to realize that this poor performance was due to lack of effort and lack of appropriate strategies. He further related that by increasing effort and by changing strategies, subsequent performance had improved considerably. Thus, both effort and strategies were depicted as unstable and controllable. Besides providing anecdotal evidence, it was further noted that these experiences were consistent with psychological research. Because some subjects received two or three attributional retraining sessions, the videotapes varied in terms of the event in which failure was experienced, focusing either on: failure on an academic test; failure with piano performance; or failure obtaining a scholarship. The order of presentation of these three versions was counterbalanced.

Instructional videotapes. Instructor expresssiveness was manipulated with two 25-minute viedotaped lectures. These tapes have been used extensively in previous research (e.g., Perry & Dickens, 1984; Perry & Penner, 1990). Expressiveness was defined in terms of physical movements, eye contact, voice inflection, and humor, with the high expressive instructor exhibiting a higher frequency of these behaviors than the low expressive instructor. Both the low and high expressive lectures were presented by the same male professor.

Dependent measures. Consistent with previous research (Perry & Penner, 1990), students' achievement was assessed with a 30-item multiple-choice test based on the videotaped lecture. Attributions concerning the achievement test, as well as expectations for future performance were also measured. Attribution items were: How much ability do you think you have for this type of test? (0 = none at all, 9 = a great deal); How hard did you try to answer the questions on the test? (0 = did not try at all, 9 = tried my hardest). Two expectation questions were included concerning performance on the next psychology test, and grade point average (GPA) at the end of the academic year. Ratings were made on scales from 0 to 100 for the first question and on a scale ranging from 0 to 4 for GPA, with 0 reflecting failure and 4 a letter grade of A/A+.

Procedure

Students participated in three sessions, with sessions scheduled at one week intervals. All sessions were conducted in a simulated classroom and students participated in groups of 9 to 16. They received either one, two, or three attributional retraining interventions. A control group had no

attributional retraining. The procedure is outlined in Table 1. The attributional retraining and lecture videotapes were shown with an Advent 1000A Videobeam Color Projection Unit, which projected an approximately life-size image onto a 2.2-m diagonal screen. As can be seen in Table 1, all students viewed the lecture in Session 2 and wrote the achievement test one week later.

Insert Table 1 about here

Results

Achievement Test

Following Perry and Magnusson (1989), achievement test results were analyzed separately for low and high expressive instruction with Attributional Retraining (none, one, two, three) x Success (low, high) 4 x 2 analyses of variance (ANOVA). The results of these analyses are presented in Table 2, means and standard deviations are shown in Table 3. For low expressive instruction, only the success main effect was significant, indicating that students who previously did poorly on the aptitude test also obtained lower scores on the achievement test than their high success counterparts (Ms = 11.63 vs. 14.11).

Insert Table 2 and 3 about here

In contrast, for high expressive instruction, both the success and attributional retraining main effects were significant, and both were

qualified by a Success x Attributional Retraining interaction (see Figure 1).

Insert Figure 1 about here

This interaction was probed with Bonferroni t-tests. Six contrasts were computed, comparing attributional retraining groups for low and high success students, respectively (critical t value = 2.70 for 6 comparisons, df = 88, $p < .05$ for each set of comparisons). For low success students, receiving one attributional retraining session enhanced performance, relative to the control group, $t = 3.35$, as did two sessions, $t = 3.62$, and three sessions, $t = 2.83$ (Ms = 10.10, 15.25, 16.25, and 14.11 for control, 1AR, 2AR, and 3AR groups, respectively). No differences were found between the three attributional retraining sessions. Attributional retraining did not affect performance for high success subjects, all ts < 2.27 (see Table 3).

Furthermore, comparisons between low and high success groups were computed at each level of attributional retraining. One might expect that without attributional retraining, low success students would perform more poorly than high success students. A significant difference between low and high success groups should therefore emerge for the control condition. However, if attributional retraining enhances achievement for low success students, then the difference between low and high success groups should disappear for all three attributional retraining conditions. These predictions were confirmed: $t = 5.26$ for the control group, and 1.30, 1.06, and .56 for 1AR, 2AR, and 3AR groups, respectively.

In sum, attributional retraining was effective in enhancing performance only when it was combined with effective instruction. It did not benefit students exposed to ineffective instruction. Moreover, as expected, only students who had previously performed poorly benefited from the attributional retraining intervention.

Attributions

Separate Attributional Retraining x Success ANOVAs were computed for ability and effort attributions. As in the case of achievement scores, analyses were performed for low and high expressive instruction separately. For low expressive instruction, none of the analyses was significant (see Table 2 for F-values), in contrast to high expressive instruction, (see Tables 2 and 3). For high expressive instruction, a main effect was found for attributional retraining for ability attributions, which was further probed with t-tests (t critical for 6 comparisons = 2.70, df = 88, $p < .05$). Both 1AR and 2AR groups felt they had greater ability than control subjects (*Ms* = 6.23, and 5.78 vs. 4.83), but neither of these comparisons was statistically significant, $t = 2.23$ and 1.52. Furthermore, the main effect for success indicated that previously less successful students felt they had less ability for the achievement test than more successful individuals (*Ms* = 4.90 vs. 5.82).

A main effect for attributional retraining was also found for effort attributions (see Table 2 for F-values). This effect was further investigated with t-tests, with a critical value of 2.70 for 6 comparisons, df = 88, $p < .05$. The comparison between the 1AR and control group was only marginally significant, $t = 2.64$, $p < .10$ (*Ms* = 7.37 vs. 6.15).

However, the 2AR group differed significantly from the control group, t = 2.76 (Ms = 7.40 vs 6.15). That is, students who received one or two attributional retraining sessions thought they had tried harder on the achievement test than control subjects. None of the other comparisons was significant.

Expectations

Two expectancy measures were included in the present study. These measures were administered immediately after the last attributional retraining session (see the procedure outlined in Table 1). The control, 1AR and 2AR groups therefore answered these questions before viewing the lecture, whereas the 3AR group responded to the measures following the lecture. As a result, it was not possible to include instructor expressiveness as a variable in the analysis of these questions. The two expectancy measures were therefore analyzed with Attributional Retraining x Success 4 x 2 ANOVAs, collapsing across instructor expressiveness. See Table 4 for means and standard deviations.

Attributional retraining affected expectations of the next psychology test, $F(3,188) = 2.69$, $MSe = 86.09$, $p < .05$, but not expectations for GPA, $F(3,186) = 1.99$, $MSe = 0.29$, $p > .05$. Moreover, none of the follow-up t-tests probing the effect for the next psychology test was significant (all $ts < 2.46$, t critical = 2.64, df = 188, $p < .05$). Thus, contrary to the proposed hypotheses, attributional retraining did not increase expectations for future performance.

Insert Table 4 about here

In contrast, main effects were found for success for expectations for: the next psychology test, $F(1,188) = 14.40$, $p < .01$, and GPA, $F(1,186) = 24.92$, $p < .01$ (see Table 4). Students who performed more poorly on the aptitude test also expected a lower grade on the next psychology test and a lower overall GPA than the more successful students.

Discussion

The results of the present study provide further support for the effectiveness of attributional retraining as a remedial intervention for college students. It was expected that students who had previously performed poorly would be more likely to benefit from attributional retraining than the more successful individuals. Students who fail are potentially at risk, particularly if they attribute their failure to internal and stable factors. Such attributions may lead to motivational deficits and, as a result, poor performance in the future (Weiner, 1986). Students classified into the low success group indeed appeared to be at risk. These individuals had been less successful in their last year in high school and also expected to do less well in university than the high success students. Moreover, despite effective teaching, these students continued to perform poorly. This is similar to findings by Perry and his associates (e.g., Perry & Dickens, 1984; 1987; Perry & Magnusson, 1987), which show that students characterized by low perceived control perform poorly even with effective instruction.

As expected, attributional retraining enhanced the performance of such students when combined with effective teaching. It appears that by modifying attributions, the intervention enabled these students to benefit

from effective instruction. They were therefore able to learn more during the lecture and, as a result, performed better on the achievement test one week later.

In contrast, attributional retraining did not affect performance of high success students. This finding is similar to previous research which showed that attributional retraining improved performance of students with an external locus of control, but not those with an internal locus (Perry & Penner, 1990). Similarly, Wilson and Linville (1982, 1985) found that attributional retraining enhanced performance on GRE-type questions for male, but not female students. As the authors point out, one explanation for this effect is that the intervention did not provide any novel information for female students, but simply confirmed what they already knew. A similar explanation was put forth by Perry and Penner (1990) for their results. In the present study, attributional retraining may also not have provided any new options for high success students, thereby minimizing the beneficial effects of attributional retraining.

It is noteworthy that attributional retraining did not enhance performance when students were exposed to low expressive instruction, suggesting that the negative consequences of ineffective teaching were more powerful than attributional retraining. Previous research on attributional retraining has rarely taken contextual factors into account, presumably being based on the assumption that training effects will readily be maintained after the program ends. However, following the attributional retraining intervention, students will have to return to the classroom which may or may not sustain any changes brought about by attributional retraining (Perry, et al. 1992). Teaching effectiveness is one factor

that is linked with student motivation and achievement (Feldman, 1989; Perry, 1991) and, as the present study shows, it can moderate the effectiveness of attributional retraining. Thus, quality of teaching is one contextual variable that should be taken into account when assessing the benefits of attributional retraining.

Contrary to expectations, multiple attributional retraining sessions did not provide an advantage over one session, possibly because retraining sessions were scheduled only one week apart. This short time frame may not have allowed adequate time for application of the intervention and subsequent feedback in real-life situations. An alternative explanation is that only students with severe motivational deficits may benefit from multiple retraining sessions.

Similarly, attributional retraining did not affect students' expectations of future performance. These results are likely due to the fact that the study was conducted toward the end of the academic year. By that time, grades were mostly determined on the basis of term work and were unlikely to change a great deal. The intervention would therefore have little influence on expectations of grades and overall GPA. Conducting a similar study early in the academic year would be able to address this issue.

Attributional retraining attempts to modify participants' attributions about the cause of their failures and successes. However, few studies have actually demonstrated such attributional changes (Forsterling, 1985, Perry et al., 1992). In the present study, an attempt was made to assess this effect by asking students about the extent to which they attributed their

test performance to ability and effort. There was some indication that students who received attribution retraining thought they had more ability for, and had tried harder on the test than the control group. Considering that the statistical power was low because of the small sample size, these results are quite promising. Keeping in mind that attributional retraining enhanced performance on the achievement test, students who received attributional retraining therefore attributed their success to ability and effort. Within Weiner's (1985, 1986) attribution theory, such attributions for success should lead to high achievement motivation and, consequently, achievement striving in the future.

In sum, college students who perform poorly can jeopardize their academic careers. The present study shows that despite effective teaching these students will continue to fail. As such, they appeared to lack the capacity to benefit from the positive cognitive and motivational consequences of effective teaching. A brief attributional retraining intervention enabled these students to improve their performance. Thus, both effective teaching and attributional retraining were necessary to enhance achievement.

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Table 1: Procedure

Experimental group	Session 1	Session 2	Session 3
Control	Aptitude test	Lecture	Achievement Test Attributions
1AR	Attributional retraining Aptitude test Expectations	Lecture	Achievement Test Attributions
2AR	Attributional retraining Aptitude test	Attributional retraining Expectations Lecture	Achievement Test Attributions
3AR	Attributional retraining Aptitude test	Attributional retraining Lecture	Attributional retraining Expectations Achievement Test Attributions

Note: In each session, the tasks are listed in the order in which they were presented.

Table 2:
Summary Table of Significant Effects for the Postlecture Achievement Test and Causal Attributions

Measures		AR	Success	AR x Success	MSe
		Low Expressive Instruction			
Achievement Test	F	0.67	14.39**	0.45	10.38
	df	3,94	1,94	3,94	
Ability	F	1.73	3.23	0.53	3.18
	df	3,94	1,94	3,94	
Effort	F	0.38	2.29	0.79	3.13
	df	3,94	1,94	3,94	
		High Expressive Instruction			
Achievement Test	F	3.33*	17.93**	5.14**	12.60
	df	3,88	1,88	3,88	
Ability	F	3.26*	4.45*	0.36	4.31
	df	3,88	1,88	3,88	
Effort	F	3.26*	1.53	1.73	2.34
	df	3,88	1,88	3,88	

Note: AR = Attributional Retraining. * $p < .05$, ** $p < .01$.

Table 3
Means and Standard Deviations for Achievement Test and Attributions

Measures		Low Success				High Success			
		C	1AR	2AR	3AR	C	1AR	2AR	3AR
Low Expressive Instruction									
Achievement Test[1]	M	11.90	11.31	11.39	11.92	15.43	14.11	13.50	13.42
	SD	3.93	2.82	2.83	2.69	3.57	2.42	4.22	3.32
Ability[2]	M	5.70	5.44	4.94	4.38	5.57	6.33	6.00	5.17
	SD	1.06	1.86	1.86	1.76	1.99	2.00	1.41	1.90
Effort[3]	M	5.80	6.25	6.39	5.92	6.50	6.22	6.90	6.92
	SD	1.55	1.88	1.82	1.80	1.87	1.99	0.88	1.93
	n	10	16	18	13	14	9	10	12
High Expressive Instruction									
Achievement Test	M	10.10	15.25	16.25	14.11	18.33	17.18	17.88	14.90
	SD	4.24	3.22	2.76	3.95	2.96	3.87	3.54	3.28
Ability	M	4.00	5.83	5.38	4.39	5.67	6.64	6.19	4.80
	SD	2.35	1.59	2.00	2.06	2.06	2.16	1.94	2.53
Effort	M	5.56	6.83	7.63	6.83	6.75	7.91	7.19	6.60
	SD	2.40	1.53	0.74	1.58	1.14	1.22	1.28	1.96
	n	9	12	8	18	12	11	16	10

Note: C, 1AR, 2AR, and 3AR refer to experimental groups receiving none, one, two, or three attributional retraining session, respectively. [1] The test score range was from 0-30. [2]/[3]Ability and effort attributions: range = 0-9.

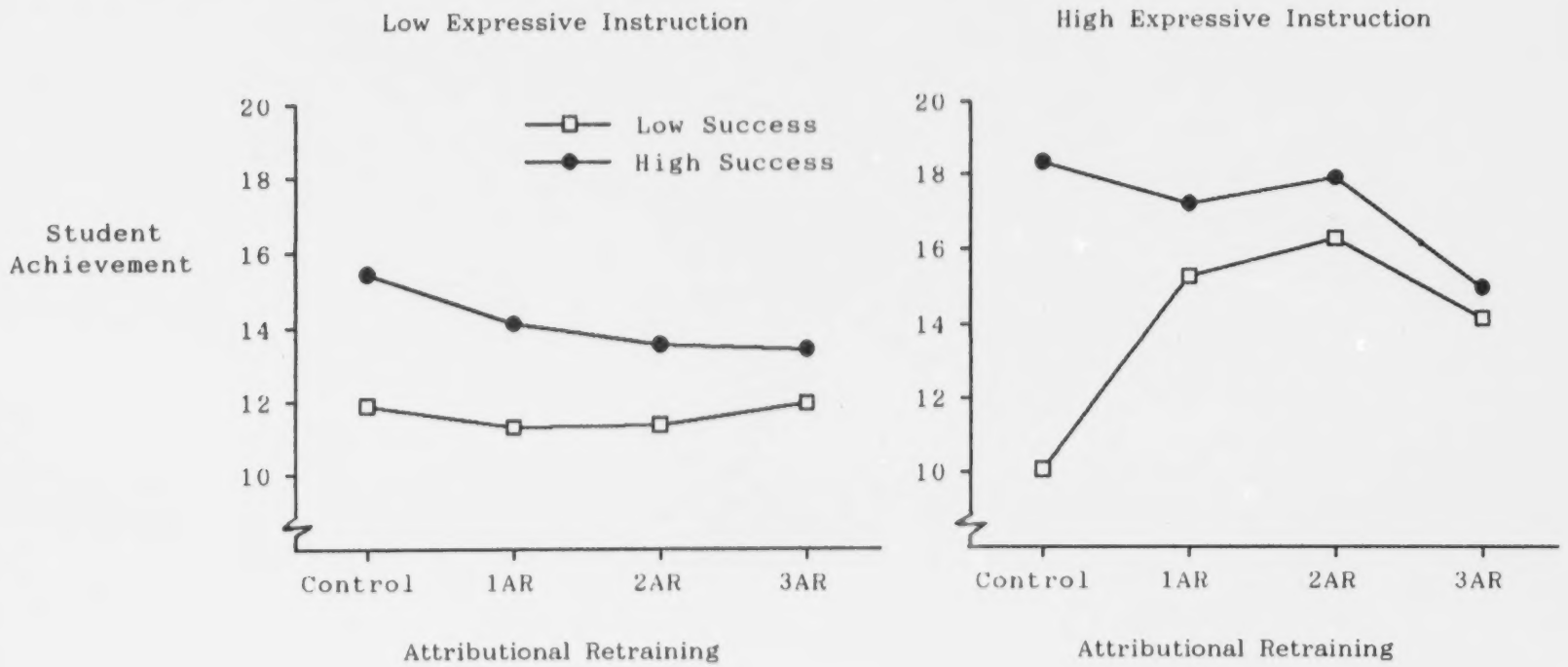
Table 4:
Means and Standard Deviations for Expectancy Measures

Measures		C	1AR	2AR	3AR
		Low Success			
Psychology Test	M	75.83	72.29	74.38	71.70
	SD	8.78	12.61	8.41	10.27
	n	18	28	26	30
GPA	M	2.82	2.68	2.68	2.56
	SD	0.68	0.43	0.52	0.39
	n	19	27	26	29
		High Success			
Psychology Test	M	79.31	81.20	80.00	74.09
	SD	6.85	8.19	7.48	9.52
	n	26	20	26	22
GPA	M	3.00	3.34	3.03	2.94
	SD	0.54	0.49	0.69	0.59
	n	25	20	26	22

Note: C, 1AR, 2AR, and 3AR refer to experimental groups receiving none, one, two, or three attributional retraining sessions. The scale ranged from 0-100 for the psychology test, from 0-4 for GPA.

FIGURE CAPTION

Figure 1: The attributional retraining by success interaction on student achievement for the low (left panel) and high expressive instructor (right panel).


Low Expressive Instruction
High Expressive Instruction
Student Achievement
20
18
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Low Success
High Success
Control
1AR
2AR
3AR
Attributional Retraining
Attributional Retraining